

**BRIEF DESCRIPTION OF THE DRAWINGS**

For a more complete understanding of the present invention, and the advantages thereof, reference is now made to the following descriptions taken in conjunction with the accompanying drawings, in which:

5      **FIGURE 1 illustrates an embodiment in which metal nanowires can be deposited on a substrate;**

FIGURES 2 A and <sup>2</sup>~~B~~ illustrate an embodiment wherein chemical mechanical etching is used to generate metal electrodes (embedded in a dielectric surface) on which Pd or Pd-alloy nanowires can be electrochemically grown;

10      **FIGURE 3 illustrates a variable-range hydrogen sensor of the present invention comprising metal nanowires;**

**FIGURE 4 illustrates a variable-range hydrogen sensor of the present invention comprising columns of metal nanoparticles; and**

15      **FIGURE 5 illustrates an embodiment wherein a variable-range hydrogen sensor of the present invention is used to monitor hydrocarbon breakdown in electrical transformers.**